

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. **(Currently Amended)** An antimicrobial material in an encapsulated form, comprising (i) a core comprising an antimicrobial material and (ii) a shell of encapsulating material, wherein the shell of encapsulating material is impermeable to the antimicrobial material and comprises a hydrophobic shell material having a melting point above about 45°C.
2. **(Original)** An antimicrobial material according to claim 1 wherein the antimicrobial material is an antibacterial material.
3. **(Currently Amended)** An antimicrobial material according to claim 1 ~~or 2~~ wherein the antimicrobial material is a bacteriocin.
4. **(Original)** An antimicrobial material according to claim 1 wherein the antimicrobial material is an antifungal material.
5. **(Original)** An antimicrobial material according to claim 1 wherein the antimicrobial material is at least natamycin.
6. **(Original)** An antimicrobial material according to claim 3 wherein the bacteriocin is selected from lanthionine containing bacteriocins, *Lactococcus*-derived bacteriocins, *Streptococcus*-derived bacteriocins, *Pediococcus*-derived bacteriocins, *Lactobacillus*-derived bacteriocins, *Carnobacterium*-derived bacteriocins, *Leuconostoc*-derived bacteriocins, *Enterococcus*-derived bacteriocins and mixtures thereof.
7. **(Original)** An antimicrobial material according to claim 1 wherein the antimicrobial material is at least nisin.
8. **(Currently Amended)** An antimicrobial material according to claim 1 ~~any one of the~~

~~preceding claims~~ wherein the antimicrobial material is present in an amount to provide a microbicidal or microbiostatic effect.

9. **(Original)** An antimicrobial material according to claim 8 wherein the microbicidal or microbiostatic effect is a bactericidal or bacteriostatic effect.

10. **(Original)** An antimicrobial material according to claim 9 wherein the bactericidal or bacteriostatic effect is in respect of Gram-positive bacteria.

11. **(Original)** An antimicrobial material according to claim 9 wherein the bactericidal or bacteriostatic effect is in respect of an organism selected from species of *Bacillus*, species of *Clostridium*, *Listeria monocytogenes*, lactic acid bacteria, *Leuconostoc*, *Carnobacterium*, *Enterococcus*; *Brochothrix thermosphacta* and *Lactobacillus* species.

12. **(Original)** An antimicrobial material according to claim 9 wherein the bactericidal or bacteriostatic effect is in respect of *Listeria monocytogenes*.

13. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the shell is selected to provide sustained release of the antimicrobial material from the encapsulated antimicrobial material.

14. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the shell is selected to prevent, reduce or inhibit degeneration or inactivation of the antimicrobial material.

15. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the shell is selected to release the antimicrobial material from the encapsulated antimicrobial material under predetermined conditions.

16. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the shell is selected to release the antimicrobial material from the

encapsulated antimicrobial material on contact with a foodstuff.

17. **(Original)** An antimicrobial material according to claim 16 wherein the foodstuff is a marinade.

18. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the shell of the encapsulated antimicrobial material is capable of withstanding injection.

19. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the shell of the encapsulated antimicrobial material is capable of withstanding a pressure of greater than 1.5 bar.

20. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the encapsulated antimicrobial material is a particulate form.

21. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the encapsulated antimicrobial material has an average particle size of less than 150 μm .

22. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the shell is selected to provide sustained release of the antimicrobial material from the encapsulated antimicrobial material.

23. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the shell is selected to prevent, reduce or inhibit degeneration or inactivation of the antimicrobial material.

24. **(Currently Amended)** An antimicrobial material according to claim ~~[[18]]~~ 23 wherein degeneration is by one or more factors selected from heat degradation, pH induced degradation, protease degradation and glutathione adduct formation.

25. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the shell material is or comprises ~~a material selected from fats, emulsifiers, waxes (animal, vegetable, mineral or synthetic), liposome forming lipids, hydrocolloids, natural or synthetic polymers and mixtures thereof.~~

26. **(Cancelled)**

27. **(Currently Amended)** An antimicrobial material according to claim 25 ~~or 26~~ wherein the fat is a triglyceride.

28. **(Currently Amended)** An antimicrobial material according to claim 27[[5]] wherein the triglyceride is a vegetable triglyceride.

Claims 29-31. **(Cancelled)**

32. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the encapsulated antimicrobial material is prepared by or is obtainable by a process selected from spray cooling, and fluidised bed coating.

33. **(Currently Amended)** An antimicrobial material according to ~~any one of the preceding claims~~ claim 1 wherein the encapsulated antimicrobial material further comprises a chelator.

34. **(Original)** An antimicrobial material according to claim 33 wherein the chelator is selected from EDTA, citric acid, monophosphates, diphosphates, triphosphates and polyphosphates.

35. **(Original)** An antimicrobial material according to claim 33 or 34 wherein the chelator enhances the antimicrobial activity and/or antimicrobial spectrum of the antimicrobial material.

36. **(Currently Amended)** An antimicrobial material according to claim 33, ~~34 or 35~~ wherein the chelator enhances the antimicrobial activity and/or antimicrobial spectrum of the

antimicrobial material in respect of Gram-negative bacteria.

37. **(Currently Amended)** A composition comprising

- (i) an encapsulated antimicrobial material as defined in claim 1 ~~according to any one of the preceding claims;~~
- (ii) a carrier.

38. **(Original)** A composition according to claim 37 wherein the carrier is or comprises brine.

39. **(Currently Amended)** A composition according to claim 37 ~~or 38~~ wherein the carrier and the encapsulated antimicrobial material have substantially the same density.

40. **(Original)** A composition according to claim 37 wherein the encapsulated antimicrobial material is modified to have substantially the same density as the carrier.

41. **(Original)** A composition according to claim 40 wherein the encapsulated antimicrobial material is modified by contacting the encapsulated antimicrobial material with oil.

42. **(Original)** A composition according to claim 41 wherein the oil is brominated oil.

43. **(Currently Amended)** A composition according to claim 41 ~~or 42~~ wherein the carrier is modified to have substantially the same density as the encapsulated antimicrobial material.

44. **(Original)** A composition according to claim 43 wherein the carrier comprises xanthum gum.

45. **(Currently Amended)** A composition according to claim 37 ~~any one of claims 37 to 43~~ wherein the carrier comprises an emulsifier.

46. **(Withdrawn-Currently Amended)** A protected foodstuff comprising

- (i) a foodstuff, and

(ii) an antimicrobial material according to claim 1 ~~any one of claims 1 to 36~~ or a composition according to claim 37 ~~any one of claims 37 to 45~~.

47. **(Withdrawn)** A protected foodstuff according to claim 46 wherein the foodstuff is selected from raw meat, cooked meat, raw poultry products, cooked poultry products, raw seafood products, and cooked seafood products.

48. **(Withdrawn)** A protected foodstuff according to claim 47 wherein the foodstuff is raw meat.

49. **(Withdrawn)** A protected foodstuff according to claim 47 wherein the foodstuff is a raw or cooked poultry product.

50. **(Withdrawn)** A protected foodstuff according to claim 46 or 47 wherein the foodstuff comprises whole meat muscle.

51. **(Withdrawn-Currently Amended)** A process for introducing an antimicrobial material as defined in claim 1 into a foodstuff comprising

(i) providing the antimicrobial material in an encapsulated form comprising a core of antimicrobial material and shell of encapsulating material; and

(ii) introducing the encapsulated antimicrobial material into or onto the foodstuff.

52. **(Withdrawn)** A process according to claim 51 wherein the encapsulated antimicrobial material is introduced into or onto the foodstuff by (a) injecting the encapsulated antimicrobial material into the foodstuff or (b) tumbling the encapsulated antimicrobial material with the foodstuff.

53. **(Withdrawn)** A process according to claim 51 or 52 wherein the encapsulated antimicrobial material is introduced into the foodstuff by injecting the encapsulated antimicrobial material into the foodstuff.

54. **(Withdrawn)** A process according to claim 51 or 52 wherein the encapsulated antimicrobial

material is introduced into or onto the foodstuff by tumbling the encapsulated antimicrobial material with the foodstuff.

55. (Withdrawn-Currently Amended) A process according to claim 51 ~~46~~ wherein

- (i) the antimicrobial material is at least nisin,
- (ii) the antimicrobial material is present in an amount to provide a microbicidal or microbiostatic effect in respect of *Listeria monocytogenes*,
- (iii) the shell is selected to prevent, reduce or inhibit degeneration or inactivation of the antimicrobial material by one or more factors selected from heat degradation, pH induced degradation, protease degradation and glutathione adduct formation; and
- (iv) the foodstuff is selected from raw meat products, cooked meat products, raw seafood products, cooked seafood products, raw poultry products and cooked poultry products.

56. (Withdrawn-Currently Amended) A foodstuff prepared by a process as defined in claim 51 ~~any one of claims 46 to 55~~.

57. (Withdrawn-Currently Amended) A foodstuff obtainable by a process as defined in claim 51 ~~any one of claims 46 to 55~~.

Claims 58-61. **(Cancelled)**